SCIENCE & GOVERNMENT REPORT

19th Year of Publication

The Independent Bulletin of Science Policy

Volume XIX, No. 14 | P. O. Box 6226A, Washington, D. C. 20015 | © September 15, 1989

Q&A with Erich Bloch

DOD Share of Research Too Big, NSF Head Says

Five years in office this month, Erich Bloch, Director of the National Science Foundation, is the longest-serving research-agency head in Washington today. Bloch spoke to SGR Editor Greenberg on September 12, the day a Senate Appropriations Subcommittee, for the third straight year, thwarted NSF's ambitious budget-growth plans (see P. 3). Following is the text of that conversation, transcribed and edited by SGR.

SGR. Science is popular. Why is NSF having budget troubles on Capitol Hill?

Bloch. No surprise. First of all, there is not enough money to go around. Second, we are grouped in an appropriations bill with housing, veterans, EPA, and NASA. The social programs have not been treated very well by the Administration. What you see on the Subcommittee is essentially a repercussion to that. NSF is in that kind of an environment.

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SGR. You're not asking for all that much more money.

Bloch. What upsets me is that Congress wants to do everything. You can see it in the NSF bill that came out of the Subcommittee. We didn't ask for any facilities money, but the bill includes $20 million for facilities—taken out of research. Why? Because somebody in Congress is interested in facilities. Now, $20 million doesn't do anything. In a constrained environment we're trying to do too much instead of setting priorities.

SGR. Does this really hurt what you're trying to do in research?

Bloch. We're not getting decreases, we're actually getting increases. It's a question of how big an increase. I'm not saying we're not spending enough on R&D. But I think we're not spending it in a balanced way. We're still spending too much on defense R&D. We're not spending enough on basic research. That's gone down when we're under pressure from other countries more and more. It's a balance between applied and basic, between defense and civilian, and that's what's not right. And with this distributive way of doing things that exists in Congress, we won't come to that kind of a decision.

SGR. Too much on defense R&D?

Bloch. If you look at the balance between defense and civilian R&D, it's much too much on the side of defense. Why do I say that? Primarily, because it's the civilian sector that has taken on the lead in many of the new technologies and new sciences—not the way it was in the past, where defense was the lead user of a technology. Yesterday there was a meeting of the National Committee on Semiconductors. And one of the things which everybody pointed to was that the lead for the use of new advanced semiconductors is no longer in computers or telecommunications. It's in consumer products. Industry primarily finances the development. It doesn't fund as much in basic research, but it's in basic research where you lay the foundation for the product

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In Brief

D. Allan Bromley, settling in as head of the White House Office of Science and Technology Policy (OSTP), has extended a cordial hand to Congress's inhouse research services in science-policy affairs—entities ignored, and even disdained, by his two Reagan-appointed predecessors. On August 28, at the Library of Congress, Bromley met with some 50 staff members of the Office of Technology Assessment (OTA) and the Congressional Research Service. According to one attendee, "Bromley said we're important and that he wants help, advice, and consultation."

Giving Bromley "an A plus" for his performance, one Congressional staff member said, "It was the first time in years we've had any contact with OSTP." OTA's skeptical analyses of the Strategic Defense Initiative infuriated Reagan's first head of OSTP, George A. Keyworth II.

The plumpest prize in engineering, $350,000 (plus a gold medal), will debut October 3 when the National Academy of Engineering (NAE) awards the Charles Stark Draper Prize, endowed by the Cambridge, Mass., lab of the same name. Citing a projected shortage of engineers, NAE says the prize is intended "To foster greater appreciation for the important role played by engineering in modern society." What might be noted is that the winner (name not yet disclosed) is undoubtedly reasonably well off and that $350,000 could help alleviate the worrisome shortage by financing a couple of dozen graduate fellowships.

As mandated in last year's trade bill, the National Academy of Sciences is undertaking a study of high-tech export controls, long a source of conflict between hardliners and free traders. Previous NAS studies in this area helped strengthen the latter in Congress and the Commerce Department. The study, financed by the Commerce, Defense, and State Departments, is chaired by a veteran of the Washington advisory circuit, Roland W. Schmitt, President of Rensselaer Polytechnic Institute.

. . .Would Favor Basic Science over Big Projects

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that comes down the pike years later. That's why the federal government is involved in basic research—it builds a foundation for the economy.

SGR. *You and many others have for years unsuccessfully urged the Defense Department to spend more on basic research, with almost no effect.*

Bloch. Correct. It's the same as in industry. The demands for tomorrow are overwhelming, so you do what comes first.

SGR. *Several research mega-projects in the budget are organizationally separate from NSF, but Congress tends to regard it all as science: Space Station, Superconducting Super Collider (SSC), the Genome Project. For starters, are you a big SSC booster these days?*

Bloch. I don't think I ever was. I think the country should have such an instrument. No doubt about it. Do we need it on the present schedule? That's something else again. The spending rate could probably be slowed down, and some of the other things that have higher priorities could be done first.

SGR. *What would you do ahead of the SSC?*

Bloch. Double the Foundation's budget.

SGR. *And the Space Station?*

Bloch. The Space Station is not a scientific project. It has a lot to do with geopolitics and technology, and the kind of exploration of space that is not a scientific endeavor. I think we should be leading in the space arena, but not necessarily manned space. Again, I'll make the same point on the Genome Project. It's a long-term project. Let's fund the basic life sciences first, because everything will depend on that. And let's not get into a race where we think we have to finish it tomorrow morning. Should we work on the Genome Project? Sure. But we should become much more international in some of these efforts. The Space Station is trying to do that with mixed success. SSC didn't do it, and that was a mistake. I'm trying to do some of our projects on an international basis, like new astronomy and new physics facilities. We try to involve some of our counterparts in other countries. I don't think we can afford these things on a national basis any longer. But you've got to do it right from the beginning. You can't do it after the fact.

SGR. *How much more could NSF usefully spend?*

Bloch. We fund about 30 percent of the applications. In some areas it's as low as 18. I would say up to 45-50 percent are as good science as the ones we're funding. We're turning down good projects.

SGR. *The warnings of a few years ago about Japan becoming a major power in basic research have diminished, and now there are reports that Japan has reduced its growth rate in that area.*

Bloch. I'm still saying let's be concerned about that. I think there is every intent in Japan to become strong in basic research. I was over there last November, and it was quite a change from what they said and worried about just 15-18 months before that. Among my counterparts in the government and in the private-sector and government laboratories, you heard more of a commitment to basic research. The problem there is how to do it. You don't just turn it on overnight. But I think we should take them seriously. Their whole push on their Human Frontiers Program [a major research undertaking, international in nature, focused on human interactions with the environment]—I think they handled it badly initially. They overpromised what they wanted to do, instead of starting off with a small effort. It took them too long to fight their own internal battles. Nevertheless, I think they're serious about it, and we should take them seriously. They have built up a tremendous research base in terms of equipment and laboratories. We should take advantage of that.

SGR. *How can we take advantage of that?*

Bloch. Send people over there.

SGR. *Our people don't want to go.*

Bloch. That's our problem. We've got to change that. The Japanese are ahead of us in one thing: they read, they know how to listen, and they're willing to take anybody's ideas and run with them. We are falsely proud, and we can't read—I'm convinced of that. We've got to change this. The Europeans have had exactly the same problem over the past 50 years, but they're getting their act together. That's another change that we're not giving enough credit to—what is going to happen in Europe. Europe is improving in research. They have a large number of cooperative programs, Eureka, Esprit, and others. When I was over there a few months ago, I talked to people who in the past looked on that with jaundiced eyes. Now, they've all come to the conclusion that these things are working. It's a different spirit. The jury is still out on what it will amount to in the end, but the signs are in the right direction.

SGR. *What did you find in the Soviet Union when you visited there this summer?*

Bloch. We just signed an agreement, and the visit was to meet with some of the people and see some of the institu-

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Independently published by Science & Government Report, Inc., twice monthly, except once each in January, July, August, and September. Annual subscriptions: Institutions, $290.00 (two years, $495.00). Bulk and individual rates upon request. Editorial offices at 3736 Kanawha St. NW, Washington, DC 20015. Tel. (202) 244-4135. For subscription service: PO Box 6226A, Washington, DC 20015. Tel. 1-800-522-1970; in Washington, DC 785-5054. Reproduction without permission is prohibited. SGR is available on University Microfilms International. Claims for missing back issues will be filled without charge if made within six weeks of publication date. ISSN 0048-9581.

. . .Bloch Cagey on Another Term as NSF Director

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tions. The agreement broke new ground. For instance, we never had an agreement, believe it or not, on mathematics. Not just NSF—anybody. Unbelievable. The new agreement is directly between NSF and the Soviet Academy of Sciences. Before, we went through the National Academy of Sciences. And it's the first time that we have an agreement with the Soviets where the responsibility doesn't come from the top.

It's based on individual-to-individual getting together, agreeing on a program or a piece of research, coming forward to the two agencies and asking for support. Before, it was the two academies that decided what should be worked on; then they looked for people to work on it. This is grass roots up. A very foreign concept to our counterparts in the Soviet Union.

It was my first visit to the Soviet Union. I visited 10-12 research centers, major and minor. I was highly impressed with the people and the openness. I was not that impressed with their equipment, especially their computer equipment, which is non-existent in many cases or at a level that is the last generation or older. Another thing is the isolation, even within the Soviet Union. What they're getting from the defense sector or the space sector—I'm convinced that there's no communication there. They just don't talk to each other. They have kept them separate.

SGR. *What do we have to gain from cooperating with them?*

Bloch. As I said, I was impressed with the people. They have ideas and in many areas, they're probably more advanced than we are in theory, because their experimental focus has not been as great as they wanted it to be. They are maybe ahead of us on earthquake engineering. They're very good on deep-hole drilling and the earth sciences. They have spots where they're really outstanding, and we have to take advantage of that.

SGR. *You have one year to go on a six-year appointment. Would you sign on for a second tour?*

Bloch. No, I have no intention.

SGR. *If asked to, would you?*

Bloch. If asked to? God knows what one does when one is asked. My present intention is to finish out six years.

SGR. *And then do what?*

Bloch. I don't know. Before I came here, I didn't know I was coming here. I went into this assignment directly from one with IBM for 32 years. Maybe my next step is to do nothing for a while.

SGR. *Have you discussed your tenure with Dr. Bromley [White House Science Adviser]?*

Bloch. I don't think it's up to me to have a discussion; certainly not right now. It's premature. He has other problems that are much more urgent and current than what's happening a year from now at NSF.

Mikulski Cuts NSF, NASA

This Congressional session brought the debut of Senator Barbara Mikulski (D-Md.) as Chairman of the Appropriations Subcommittee that includes NSF and NASA, agencies with ambitious and frequently frustrated plans for growth. As in the House, both got more than last year, but a good deal less than they had hoped for, outcomes in which the Chairman is the most influential factor. Differences between the two chambers remain to be resolved, but it's a near certainty that both agencies will have to trim their plans.

Mikulski's Subcommittee cut $86 million from NSF's request for $2.149 billion for fiscal 1990 (which begins October 1). If upheld, the reduction, from a requested increase of $264 million, would further retard NSF's plan for a doubling of its budget, to $3.2 billion, over the span of 1988-92. The plan, initiated by Reagan and endorsed by Bush, fell short in Congress in its first two years, and is now on the way to a third setback. Especially notable in the Senate Subcommittee bill was a $20 million item for research facilities, proposed, to the horror of NSF management, by Chairman Mikulski. With academe displaying a limitless appetite for lab buildings, NSF has dealt with the problem by saying no to all of them, pending funding of a separate facilities bill that carefully spells out cost-sharing rules and criteria for awards.

NSF's education programs, a constant sore point with Congress, which feels they're neglected in favor of research grants, also brought an intervention by Mikulski's Subcommittee, but a more favorable one than the House's, in NSF's view. The House version, which has been approved on the floor, specified $210 million for the NSF Science and Engineering Education Directorate—an increase of $20 million over the budget request. The Mikulski version, still to go to the Senate floor, raises education by $10 million, small amount but big signal.

In dealing with NASA's request for $12.3 billion—an increase of $1.2 billion over last year—the Senate Subcommittee cut $934 million, including $200 million from the politically wobbly Space Station, for which the White House requested $1.6 billion. The Senate figure for the Space Station, $194 million above the House version, was described by Mikulski's Subcommittee as "the minimum amount NASA has told the Subcommittee is necessary to keep the space station program on time and in the form it is currently configured."

Another item in the budget voted for NASA by Mikulski's Subcommittee was a $59 million increase in the space science account. It has been noted that the Goodard Space Center is in the Chairman's State.

Whew! Hughes Institute Fulfills Spending Quota

Under the IRS lash to spend fast or lose it, the Howard Hughes Medical Institute (HHMI) has for another year upheld its role as a charitable institution largely dedicated to surfeiting the least needy in the biomedical sciences, a nationwide elite that has expanded to 192 investigators at 35 institutions.

The HHMI fiscal output for biomedical research in the fiscal year ending August 31 totaled a record $182 million, which put the behemoth of research support about $5.8 million above the 3.5 percent of assets that IRS says it must annually spend to avoid penalties. In addition to the research money, HHMI also spent about $50 million on education programs in accordance with a tax-settlement plan announced in 1987.

Staff members at the Institute convey the impression of weary stokers on a coal-burning vessel. Thrift and deficit-avoidance dominate the operations of most institutions, but at the Howard Hughes Medical Institute, top priority is accorded to getting the money out the door. The staff achieved the planned minimums in 11 of 12 months last year, according to a carefully monitored tally.

HHMI's assets, now swollen to $6.5 billion by the soaring stock market, originated in the 1984 sale of Hughes Aircraft stock, of which the Institute was the sole owner. The sale, to General Motors, brought in about $5 billion, making Hughes the biggest by far of all philanthropies, including the Ford Foundation (then valued at $3.5 billion).

The spending formula was initiated in 1987 in settlement of a long-running law suit in which the IRS contended that the late Howard Hughes, the eccentric billionaire industrialist who founded the Institute in 1953, was using it as a tax dodge. For many years, under prior management, HHMI dribbled out only a few millions. But in 1984, the trustees set the course for the presentday HHMI by bringing in new management with a mandate for big-league philanthropy.

In settlement of the IRS suit, the Institute agreed to follow the 3.5 percent payout formula, paid a penalty of $35 million and also agreed to a decade-long $500 million education program, a departure for Hughes, which had

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Job Changes & Appointments

F. Karl Willenbrock has been appointed Assistant Director of NSF for Scientific, Technological and International Affairs. A familiar Washington figure for his involvement in engineering-education reform, Willenbrock was Professor of Engineering at Southern Methodist University from 1976-86 and until recently Executive Director of the American Society for Engineering Education. At NSF he succeeds ***Richard J. Green***, who last January became Director of NSF's newly created Research Facilities Office.

Phillips V. Bradford, Associate Director of the Center for Advanced Technology, Computer and Information Systems at Columbia University, has been named Director of the Colorado Advanced Technology Institute, the state's high-tech development agency. The legislature recently raised CATI's budget for 1989-90 by $300,000, for a total of $2.5 million.

Alan Kraut has moved from the American Psychological Association (APA), where he was head of the Science Directorate, to the post of Executive Director of the recently established American Psychological Society, a 6000-member splitoff from the warring factions of the APA. The APS, which stresses research, publishes a bimonthly newspaper, *APS Observer*, which comes with membership; available to non-members for $10: Order from : APS, 100 North Carolina Ave. SE, Suite One, Washington, DC 20003; tel. 1-800-950-4APS.

David C. Correll has been named Director of the Smithsonian Environmental Research Center, a $2-million-a-year component of the Smithsonian empire that's likely to gain importance now that environment is politically on center stage. Correll, a Smithsonian staff member since 1962, had been serving as Acting Director of the Center.

With its credibility on environmental safety gone with a flood of public disbelief, the Department of Energy has taken to the customary comeback route of appointing a prestigious advisory committee. Titled the Secretarial Panel for the Evaluation of Epidemiological Activities of the Department of Energy, the new committee is chaired by ***Kristine Gebbie***, Administrator of the Oregon Health Division.

Members are: ***Molly Coye***, New Jersey State Commissioner of Health; ***Mark Cullen,*** Associate Professor of Medicine and Epidemiology, Yale University; ***Clark Heath Jr.***, Vice President for Epidemiology and Statistics, American Cancer Society; ***Mark Rothstein***, Director of the Health Law Institute, University of Houston Law Center; ***Michael Silverstein***, Assistant Director of Health and Safety, United Automobile Workers; ***Lee Stauffer***, Associate Professor, School of Public Health, University of Minnesota; ***Thomas Vernon***, Executive Director of the Colorado Department of Health; ***Bailus Walter***, Professor of Environmental Health and Toxicology, State University of New York at Albany.

With surveillance of Washington an urgent matter in these financially perilous times, the American Institute of Physics (AIP), umbrella for a dozen or so professional societies, has hired an experienced hand from Capitol Hill, ***Richard Jones,*** to fill the new post of Senior Liaison for Government and Institutional Relations. Jones, who logged five years in Congress as legislative assistant to two Congressmen, will "seek to establish stronger relationships between AIP's member societies and legislators and agency officials," according to an AIP announcement.

SGR is told that Jones's appointment does not affect the status of ***Robert Park,*** for many years the outspoken Washington representative of the American Physical Society, part of the AIP tribe.

Gore Providing Senate Forum for Science Policy

A forum is emerging in the Senate for continuing discussion and review of science-policy affairs, an area dominated for over a decade by the House Committee on Science, Technology, and Space.

The move to take up the topic in the Senate is the work of Senator Albert Gore (D-Tenn.), who this year became Chairman of the Subcommittee on Science, Technology, and Space, part of the Committee on Commerce, Science, and Transportation. Under previous Chairmen, the Senate Subcommittee made little use of its broad and usefully vague jurisdiction over scientific affairs.

One reason for the House's primacy in this area is that, with 435 members, the House can deploy troops to comb over topics that don't rank high for attention in the 100-member Senate. The jurisdictional boundaries are somewhat ragged, but in the House, science more or less has its own Committee, whereas in the Senate, the subject is submerged in a Committee with a broad and diverse jurisdiction.

But on September 28-29, Gore will stake a presence in Congressional science-policy affairs with hearings that will draw upon many of the regulars from the witness chair of the House Committee on Science, Technology, and Space. The hearing, designed "to bring the Subcommittee up to speed on the issues of the '90s," according to a staff member, will range over a lengthy menu, including science and economic competition, environmental matters, R&D budgets, redeployment of defense funds, White House science advice, and education.

The witness list—subject to change and with some gaps remaining to be filled—includes:

Lewis Branscomb, former IBM chief scientist, now Director of the Science, Technology, and Public Policy Program at Harvard's Kennedy School of Government.

Donald Langenberg, former Deputy Director of NSF, President-elect of the American Association for the Advancement of Science and Chancellor of the University of Illinois, Chicago campus.

Erich Bloch, Director of the National Science Foundation.

Three former Presidential Science Advisers—Frank Press, George A. Keyworth II, and H. Guyford Stever.

Herbert A. Simon, Nobel laureate in economics.

Other scheduled witnesses, less often seen on the Congressional science-policy circuit, are Robert Costello, former Pentagon Under Secretary for Acquisitions, now a Senior Research Fellow at the Hudson Institute, and Richard Anthes, President of the University Corporation for Atmospheric Research.

Absent from the witness list is the newly installed White House Science Adviser, D. Allan Bromley, exhaustively grilled by Gore at a confirmation hearing on July 21 (SGR Aug.15). The Subcommittee's explanation is that Bromley will return as a witness when confirmation hearings are held for the four presidentially appointed Assistant Directors in the White House Office of Science and Technology Policy.

So far, the unverified word around Washington is that Bromley has recruited only two: James B. Wyngaarden, the recently resigned Director of the National Institutes of Health, and J. Thomas Ratchford, Deputy Executive Officer of the American Association for the Advancement of Science.

Gore, who made a precocious run for the Democratic Presidential nomination last year, effectively used biomedical and other science-related issues during his House tenure, 1977-84, to draw wide and favorable attention. In the Senate, he's been pushing for establishment of a network of electronic "superhighways" to link data banks and computers, big and little, throughout the country [S.1067, the National High-Performance Computer Technology Act of 1989]. On September 8, the White House announced a $2 billion plan that pretty well matches Gore's design, as the Senate was pleased to point out.

Science as fuel for Presidential ambitions has a poor record, but that may change. John Glenn, casting himself as the science candidate, flopped dreadfully in his quest for the 1984 Democratic Presidential nomination, gaining not a single delegate, despite large expenditures and wide name recognition. But, with environment and industrial productivity leading the way, sci-tech issues are rising in public notice. Gore may be on to a good thing.

HHMI

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previously confined its support to medical research conducted in association with hospitals. Like the biomedical research program, the new education program in part replicates existing NIH programs. But it has also put substantial funds into college science programs and high-school "outreach," areas usually neglected by funding agencies.

However, the bulk of the Hughes money is distributed to superstar investigators who hold faculty and research appointments at various universities and hospitals. Designated Hughes investigators, their salaries and research costs are paid by the Institute. The selection criteria employed by Hughes assures that its beneficiaries would excel in the NIH funding derby, but the Hughes money comes with few strings or hassles, and it keeps coming. In the world of research, it is perhaps the sweetest money available.

With its assets on the rise, Hughes has budgeted $263 million for this year, a sum that dwarfs the spending of other philanthropies. However, apparently concerned that these matters are prone to misunderstanding, the President of the Institute, Purnell W. Choppin, provided some perspective in his annual report last year. Hughes' 1988-89 planned outlays of $230 million add up to "big numbers," he wrote, "but they must be viewed in the perspective of the NIH, whose 1987 budget of $6 billion is notably greater than the entire HHMI endowment."

The caution against misunderstanding was not accompanied by a plea for contributions.—DSG

Who's Who of Foreign Science Attaches in Wash.

The science counselors, attaches, and other sci-tech staff members at embassies and other diplomatic posts in Washington constitute a useful resource that is little-known in the American scientific community. These officials hold varying responsibilities and titles. Most work full time on S&T matters. For others, S&T is included among a batch of duties. Some embassies have no staff post for S&T; a few big ones have several persons covering the area. In general, these members of the diplomatic corps can provide good links to the scientific and technical communities in their home countries (as can their American counterparts posted abroad, an updated list of whom SGR published June 15).

Since SGR's last publication of the foreign contingent in Washington, August 15, 1987, enough changes have occurred to warrant the update that follows. Address by Embassy of the country named, plus address given below; the telephone area code is 202.

Argentina. Mrs. Monica Peralta-Ramos; Minister, Science and Technology; 1600 New Hampshire Ave. NW, Wash., DC 20009; 939-6400.

Australia. Mr. Norman F. Gomm; Counselor, Science and Technology; 1601 Mass. Ave. NW, Wash., DC 20036; 797-3000.

Austria. Mr. Bernard Zimburg; Science and Technology Counselor; 2343 Mass. Ave. NW, Wash., DC 20008; 667-8158.

Belgium. Mr. Denis Dewez; Scientific Counselor; 3330 Garfield St. NW, Wash., DC 20008; 333-6900.

Brazil. Mr. Joao Luiz Pereira-Pinto; Science and Technology Attache; 3006 Mass. Ave. NW, Wash., DC 20008; 745-2750.

Bulgaria. Mr. Vladimir Ossenoz; Science Attache; 1621 22d St. NW, Wash., DC 20008; 387-7969

Canada. Mr. Victor Bradley; Counselor, Science and Technology. Mr. D'Arcy McGee; Counselor (Energy). 501 Penn. Ave. NW, Wash., DC 20001; 682-1740.

China. Mr. Chen Baosheng; Science Counselor. Mr. Jin Xiaoming, First Secretary, Science and Technology. Mr. Li Mingde, First Secretary, Science and Technology. 2300 Conn. Ave. NW, Wash., DC 20008; 328-2500.

Czechoslovakia. Mr. Petr Bednarik; Science Attache; 3900 Linnean Ave. NW, Wash., DC 20008; 363-6315.

Denmark. Mr. Erik Ovesen; Counselor, Commercial Affairs; 3200 Whitehaven St. NW, Wash., DC 20008; 797-5345.

European Communities. (Washington Delegation) Mrs. Regine Roy; Second Secretary, Science and Technology; 2100 M St. NW, 7th Floor, Wash., DC 20037; 862-9500.

European Space Agency; Mr. Ian Pryke; Head, Washington Office; 955 L'Enfant Plaza SW, Suite 7800, Wash., DC 20024; 488-4158.

Finland. Mr. Jorma Heinonen; Counselor, Science and Technology; 3216 New Mexico Ave. NW, Wash., DC 20016; 662-1240.

France. Mr. Michel Aubry, Scientific Counselor. Attaches: Mr. Michel Badia (materials); Mr. Alain Chappe (space); Dr. Pascal Chevit (health); Mr. Jean-Francois Quillien (agriculture). Dr. Albert Lumbroso and Mme. Nicole de Montricher-Gain (social sciences), representatives of *CNRS;* 4101 Reservoir Rd. NW, Wash., DC 20007; 944-6250.

German Democratic Republic. Dr. Werner Finsterbusch; Counselor, Science and Technology; 1717 Mass. Ave. NW, Wash., DC 20036; 232-3134.

German Federal Republic. Mr. Heinz Seipel; Counselor, Science and Technology. Ms. Irene Reuder; Counselor, Science and Technology. 4645 Reservoir Rd. NW, Wash., DC 20007; 298-4000.

Great Britain. Mr. Alastair W.R. Allcock; Counselor for Science, Technology and Energy. Mr. Douglas John Yarrow, First Secretary (Science). 3100 Mass. Ave. NW, Wash., DC 20008; 462-1340.

Hungary. Mr. Lajos Nyiri; Science Attache; 3910 Shoemaker St. NW, Wash., DC 20008; 362-6730.

India. Dr. J.P. Gupta; Science Counselor; 2107 Mass. Ave. NW, Wash., DC 20008; 939-7072.

Indonesia. Mr. Giri Kartono; Education and Cultural Attache; 2020 Mass. Ave. NW, Wash., DC 20036; 775-5200.

Ireland. Mr. Donal Denham; First Secretary; 2234 Mass. Ave. NW, Wash., DC 20008; 462-3939.

Israel. Dr. Meir Yogev; Counselor, Scientific Affairs; 3514 International Dr. NW, Wash., DC 20008, 364-5500.

Italy. Dr. Emanuele Mannarino; Scientific Attache (health). Prof. Claudio Orzalesi (space and physical science). 1601 Fuller St. NW, Wash., DC 20009; 328-5500.

Japan. Mr. Takashi Kisaka; Scientific Counselor. Mr. Masakazu Toshikage; First Secretary (space). Mr. Takao Kuramochi, First Secretary (nuclear). 2520 Mass. Ave. NW, Wash., DC 20008; 234-2266.

Korea. Science attache post currently vacant; 2320 Mass. Ave. NW, Wash. DC 20008; 939-5600.

Netherlands. Mr. Emile Louzada; Counselor, Science and Technology; 4200 Linnean Ave. NW, Wash., DC 20008; 244-5300.

New Zealand. Mr. David Taylor; 37 Observatory Circle NW, Wash., DC 20008; 328-4800.

Norway. Mr. Leif Westgaard; Science Attache; 2720 34th St. NW, Wash., DC 20008; 333-6000.

Pakistan. Dr. Ghulam Akbar Khan Niazi; Education Counselor; 2315 Mass. Ave. NW, Wash., DC 20008; 939-6200.

Poland. Mr. Cezary Ambroziak; Counselor, Science and Technology; 2640 16th St. NW, Wash., DC 20009; 234-3800.

South Africa. Mr. Cyril G. Hide; Counselor, Science and Technology; 4801 Mass. Ave. NW, Wash., DC 20016; 232-4400.

Spain. Mr. Manuel Lorenzo; Commercial Counselor; 2700 15th St. NW, Wash., DC 20009; 265-8600.

Sweden. Mr. Sven-Olov Reftmark; Counselor, Science and Technology; 600 New Hampshire Ave. NW, Suite 1200, Wash., DC 20037; 337-5180.

Switzerland. Mr. Hans Peter Hertig; Counselor, Science and Technology. Mr. Martin Buechi; Attache, Science and Technology. 2900 Cathedral Ave. NW, Wash., DC 20008; 745-7900.

Thailand. Mr. Supavud Saicheua; First Secretary; 2300 Kalorama Rd. NW, Wash., DC 20008; 483-7200.

USSR. Mr. Vladimir Kryukov; Counselor, Science and Technology; 1125 16th St. NW, Wash., DC 20036; 628-7551.

Venezuela. Mr. William Larralde; Minister Counselor; 2445 Mass. Ave. NW, Wash., DC 20008; 797-3800.

Yugoslavia. Mrs. Ljiljana Milojeric-Borovcanin; First Secretary (Science, Technology and Economic Affairs); 2410 California St. NW, Wash., DC 20008; 462-6566.

US Space-Station Cuts Alarm Foreign Partners

America's international partners in the Space Station are increasingly expressing alarms about US indecisiveness in a project to which they were warmly invited and which has so far cost them nearly $1 billion, with perhaps five times that amount committed for spending.

Furthermore, as Congress hacks at the Space Station budget (see P. 3), and NASA responds with contingency designs for a scaled-down version, the partners are reminding NASA of strictly worded agreements that prohibit unilateral changes.

Following the first Space Station Cooperation Review, September 5 in Washington, a Joint Statement noted that "The European, Japanese, and Canadian Partners expressed concern that budgetary and other constraints in the United States not adversely affect the program and called on the United States to review the constraints with the objective of maintaining the program as originally agreed."

The impetus for the statement was this summer's so-called Langley Review, at which a senior NASA design team devised plans for a markedly scaled-down version of the Space Station. What came out of that exercise is referred to as a station with a Permanent Manned *Capability*, which is semantically short of a manned space station.

According to sources at the European Space Agency, the multi-nation consortium that has contracted to provide a laboratory module and other hardware for the Space Station, the PMC would house a crew of four, rather than the originally planned eight, and would not be able to accommodate the planned European or Japanese lab modules. And the PMC power supply would be only about half of the 75kw of the initial plan.

The view from ESA is that the partnership agreement, signed in September 1988, was warmly courted by the US and followed nearly three years of detailed negotiations. "When we signed up," an ESA official told SGR last week, "it was on the basis of certain capabilities. Now," he continued, "we hear about the Langley exercise, but NASA will not acknowledge that there has been a change. It says that Langley was held to examine options."

Citing reports of the Langley exercise, ESA officials have directly urged NASA to include a servicing capability for Europe's Columbus Free Flying Laboratory and to leave open the possibility of servicing the Station with Europe's Hermes vehicle. In addressing the issue, they have frequently cited the intergovernmental agreements and memorandums of understanding between ESA and NASA.

Particularly alarming to the foreign partners in the Space Station project is the lack of strong White House interest in the project. House and Senate cuts in the Space Station budget have been accomplished without any serious lobbying reaction from the Administration. One ESA official observed that the White House went all out for the Superconducting Super Collider, but has remained passive on the Space Station—DSG

In Print

(Continued from Page 8)

Research Programs in 1988, by the Agricultural Research Service, US Department of Agriculture (44 pp., no charge), in popular style, a slick, well-illustrated collection of reports on major ARS research projects.

Order from: USDA, ARS, Publications Branch, Building 005, Room 307, Beltsville, Md. 20705; tel. 301/344-3265.

Project on Scientific Fraud and Misconduct: Report on Workshop No. 2 (162 pp.), held September 1988 by the National Conference of Lawyers and Scientists, a combine of the American Association for the Advancement of Science and the American Bar Association. This one focuses on the roles of university faculty and administration in dealing with scientific delinquents, a breed so rare, according to the cosmeticians of science, that one wonders at the busy conference circuit inspired by the topic. An earlier publication reported on Workshop No. 1 (136 pp., no charge), held a year earlier, which tried to assess the incidence of the problem and past attempts to deal with it. Still to come: report on Workshop No. 3, held last February.

Order from: AAAS, Office of Public Sector Programs, 1333 H St. NW, Washington, DC 20005; tel. 202/326-6600.

Research in Progress: Howard Hughes Medical Institute (426 pp., no charge), reports in plain language, or close to it, from virtually all the 192 investigators staked by the preeminent alms house of the biomedical sciences, the Howard Hughes Medical Institute. The volume, attractively designed and well edited, fulfills its goal of "scientific reports understandable to the informed, but not necessarily scientifically trained, reader."

Order from: HHMI, Executive Offices, 6701 Rockledge Dr., Bethesda, Md. 20817; tel. 301/571-0200.

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In Print: Bio-Diversity, R&D in Japan, Space, Etc.

The publications listed are obtainable as indicated—not from SGR.

Loss of Biological Diversity: A Global Crisis Requiring International Solutions (NSB-89-122, 44 pp., no charge), report endorsed August 18 by the National Science Board, policymaking body of the National Science Foundation, recommending a major expansion of NSF research on biodiversity, as well as NSF's leadership of efforts in this area by other federal agencies. The report, prepared by a panel chaired by Craig C. Black. Director of the Los Angeles County Museum of Natural History, stresses the accelerating disappearance of many ecosystems and organisms, and notes that NSF provides "90 percent of the Federal support for systematics work at colleges and universities and 75 percent of the support for ecological sciences." (If these figures are correct, curiosity is in order concerning the whereabouts of the US Department of Agriculture.)

Order from: NSF, Office of Legislative and Public Affairs, Room 527, 1800 G St. NW, Washington, DC 20550; tel. 202/357-9498.

FROM THE NATIONAL ACADEMY OF SCIENCES, OFFICE OF JAPAN AFFAIRS:

The Working Environment for Research in US and Japanese Universities: Contrasts and Commonalities (51 pp.) and ***Learning the R&D System: University Research in Japan and the United States*** (18 pp.), companion reports (available without charge) derived from workshops involving US and Japanese researchers and administrators, discuss the basic organizational features of R&D in the two countries, with the customary stress on how many Japanese researchers come here and how few Americans go there (23,334 vs. 3633 in 1986, it says). Among the major points: Japan still lags in basic research, which the reports see as a key area for drawing foreign visitors, and language and social barriers for foreigners are indeed formidable. A major conclusion: "Resentment over the perceived imbalance in the flow of scientists and researchers between the United States and Japan, if left unaddressed, threatens to spill over into political and economic arenas."

Order from: National Academy of Sciences, Office of Japan Affairs, HA 164, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-2815.

Round Trip to Orbit: Human Spaceflight Alternatives (GPO Stock No. 052-003-01155-7; 116 pp., $7.50), by the Congressional Office of Technology Assessment, gloomily surveys NASA's perilous reliance on the Shuttle, noting that "it is statistically likely that one will be lost during the assembly of the Space Station." Among the alternatives listed (though without recommendations, as is OTA's style), are an unmanned version of the Shuttle, which OTA says would be faster and cheaper to build than the current model; the Advanced Manned Launch System, which resembles the Shuttle, or a scaled-down version called the Personnel Launch System. Then there's the X-30 Aerospace Plane, under development by the Pentagon and NASA, which OTA delicately puts down as requiring major technical advances that would push completion far into the future. Also examined is expanded international cooperation in space, including the planned European space plane Hermes, which OTA says could be redesigned to serve as a space-station rescue vehicle.

The report is a companion to previously published OTA studies:

Launch Options for the Future: A Buyer's Guide (GPO Stock No. 052-003-01117-4; 112 pp., $5.)

Reducing Launch Operations Costs: New Technologies and Practices (GPO Stock No. 052-003-01118-2; 104 pp., $4.50.)

Order from: USGPO, Superintendent of Documents, Washington, DC 20402; tel. 202/783-3238.

An OTA staff paper, ***Big Dumb Boosters: A Low-Cost Space Transportation Option?*** (45 pp., $4.50) is available from: OTA, International Security and Commerce Division, 600 Pennsylvania Ave. SE, Washington, DC 20003; tel. 202/228-6420.

HIV Infection and AIDS: Report to Congress on the USAID Program for Prevention and Control (36 pp., no charge), by the US Agency for International Development, which reports $30 million for AIDS-related activities in 68 African, Asian, and Latin American countries in fiscal 1988.

Order from: Family Health International, 1611 N. Kent St., Rosslyn, Va. 22209; tel. 703/243-8510.

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